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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/633,599	08/05/2003	Hartmut Breithaupt	BANH3001/FJD	4820
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BACON & THOMAS, PLLC 625 SLATERS LANE FOURTH FLOOR ALEXANDRIA, VA 22314			EXAMINER COOLEY, CHARLES E	
			ART UNIT 1723	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/633,599

Applicant(s)

BREITHAUP, HARTMUT

Examiner

Charles E. Cooley

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 May 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) 1-9, 26, 27, 29, 30, 32 and 33 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10-13, 16-24 and 35-40 is/are allowed.
- 6) ☒ Claim(s) 14, 15, 25, 28, 31 and 34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-40 are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

FINAL OFFICE ACTION AFTER RCE

Election/Restriction & Election By Original Presentation

1. Nonelected apparatus claims 1-9 and subsequently added process claims, 26, 27, 29, 30, 32, and 33 remain directed to an invention/species that is independent or distinct from the invention originally claimed for the explicit reasons expressed in the advisory action of 18 SEP 2006, incorporated by reference.

Since an RCE prohibits the switching of inventions (MPEP 706.07(h)), Applicant is not entitled to consideration of the withdrawn claims in this office action merely by the filing of the RCE. However, allowance of any generic claims will entitle Applicant to rejoinder of the withdrawn dependent claims that depend from an allowed generic claim (note dependent claims 17, 18, 20, 21, 23, and 24 are now rejoined as depending from allowed generic claim 10).

2. Claims 1-9, 26, 27, 29, 30, 32, and 33 are thereby withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention/species, there being no allowable generic or linking claim. Applicant has timely traversed the restriction (election) requirement.

3. This application contains claims 1-9, 26, 27, 29, 30, 32, and 33 drawn to an invention nonelected with traverse. A complete reply to this final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Priority

4. Receipt is acknowledged of papers submitted under 35 U.S.C. § 119, which papers have been placed of record in the file.

Specification

5. The substitute specification filed 31 MAY 2007 is objected to because of the following informalities:

- a. It does not comply with 37 CFR 1.125(b):
 - (b) Subject to § 1.312, a substitute specification, excluding the claims, may be filed at any point up to payment of the issue fee if it is accompanied by a statement that the substitute specification includes no new matter.
- b. Page 7, line 12 contains a hand-written alteration that should be revised to reflect the desired wording ("~~intended~~" is stricken-through and --appended-- is handwritten).
- c. Page 8, line 8: it appears "F3" should be --F2--.
- d. Page 9, line 11 contains a hand-written alteration that should be revised to reflect the desired wording ("~~MG1~~" is stricken-through and --MG1-- is handwritten).
- e. Page 10, line 20 contains a hand-written alteration that should be revised to reflect the desired wording ("~~MG1~~" is stricken-through and --RG1-- is handwritten).

Appropriate correction is required.

6. The amended title of the invention is acceptable.

Claim Objections

7. Claim 10 is objected to because of the following informalities:
- a. In line 8, insert --the-- before "first fluid line" to clarify the wording.
- Appropriate correction is required.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. **Claims 14, 15, 25, 28, 31, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 7-198554 or JP 2000-250634 in view of WILMER et al. (US 6,923,568 B2).**

JP 7-198554 discloses (per the abstract and Figures) a mixing process including for producing a fluid mixture of predeterminable mass and/or predeterminable volume by mixing a first fluid 1, held in a first fluid line 5, and a second fluid 1', held in a second fluid line 5'; the process comprising the steps of causing the first fluid to flow into a third fluid line 3, which is at least intermittently connected to the first fluid line 5 (via valve 4); and causing the second fluid to flow into the third fluid line 3, which is also at least intermittently connected to the second fluid line (via valve 4'); said steps of causing the first and second fluids to flow into the third fluid line being performed alternately (see the

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abstract) and inherently repeated several times (e.g., for subsequent batches of mixtures); the first and second fluids being joined to form a mixture that is conducted within the third fluid line 3; line 3 forming a junction at point 15 (i.e., the multiple inlets for fluids being fed into a sole output line 3); the valves 4 and 4' constituting flow adjusters in the first and second lines capable of setting a flow rate of the respective fluids in each flow line.

The examiner also notes the phrase "at least intermittently connected" is of such a broad scope to encompass the fluid lines being fluidly connected at some times to being fluidly connected at all times (which is certainly possible as a function of the position of said valves 4 and 4').

JP 2000-250634 discloses (per the abstract and Figures) a mixing process including for producing a fluid mixture of predeterminable mass and/or predeterminable volume by mixing a first fluid A, held in a first fluid line 14A, and a second fluid B, held in a second fluid line 14B; the process comprising the steps of causing the first fluid to flow into a third fluid line 12, which is at least intermittently connected to the first fluid line 14A; and causing the second fluid to flow into the third fluid line 12, which is also at least intermittently connected to the second fluid line; said steps of causing the first and second fluids to flow into the third fluid line being performed alternately (see the abstract, i.e., periodically) and inherently repeated several times (e.g., for subsequent batches of mixtures); the first and second fluids being joined to form a mixture that is conducted within the third fluid line 12; line 12 forming a junction at a point (i.e., the multiple inlets for fluids being fed into a sole output line 12); the valves 20A, 20B

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constituting flow adjusters in the first and second lines capable of setting a flow rate of the respective fluids in each flow line.

The examiner also notes the phrase "at least intermittently connected" is of such a broad scope to encompass the fluid lines being fluidly connected at some times to being fluidly connected at all times.

JP 7-198554 or JP 2000-250634 disclose the recited subject matter substantially as claimed as explained above but do not disclose the steps of measuring volumetric or mass flow rate in one or more of the three fluid lines or measuring a fluid density in at least one of the three fluid lines.

WILMER et al. (US 6,923,568 B2) shows in Figures 9, 10, and 13 discloses a process for producing a mixture and teaches steps of measuring volumetric or mass flow rate in one or more fluid lines and measuring a fluid density in one of more fluid lines at col. 6, lines 47-64:

For monitoring a slurry in a semiconductor process, an instrument for continuously measuring mass density (herein after all densities refer to mass density unless specifically indicated otherwise), such as densitometer 5, may be preferred. Measuring density is one manner of tracking concentration. For example, in slurries, the density is related to the amount of inert, non-volatile solids per unit volume. Accordingly, by measuring volumetric flow rate per unit time, for example with a flow meter, and density, the amount of inert solids delivered to a blend of process materials may be monitored. Monitoring density may also be a preferred for a slurry in a semiconductor process because density measuring instruments may produce less agglomeration than other instruments providing similar feedback because they may not introduce the same shear stresses in the slurry. A sufficiently accurate mass flow meter that does not produce unacceptable agglomeration or a percent solids sensor also may be used for this purpose.

and further teaches at col. 14, line 29 through col. 15, line 20:

Where one of the process materials is maintained at a constant volumetric flow rate, a sensor 92 providing data allowing the volumetric flow rate to be converted to a mass flow rate may be included on material supply line 18. Sensor 92 may measure density or a property that may correlated to density, such as temperature. For example, a

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controller 91 may receive a signal from sensor 92 representing a density of the process material and may calculate a mass flow rate of process material based upon this signal and the known volumetric flow.

Controller 91 may also receive signals from a sensor 93 associated with the material supply line through which the volumetric flow rate varies. As with sensor 92, sensor 93 may provide a signal that represents a property that may allow the mass flow in the material supply line to be calculated based on a volumetric flow. As the volumetric flow rate of process material may vary, controller 91 may also receive a signal from a volumetric flow meter 94, allowing the mass flow rate to be calculated. Based upon the mass flow rate in the material supply line, controller 91 may control a valve 21 to provide a mass flow rate that, with the mass flow rate of process material in the other material supply line, provides a desired blend of process materials.

In an alternate embodiment, for example as illustrated in FIG. 10, sensor 93 and volumetric flow meter 94 may be eliminated by providing a sensor 96 downstream of static mixer 22 able to verify that the blended process material is acceptable. For example, where a slurry and DI water are blended, a densitometer, percent solids sensor, or the like may be used to verify that the blended process material is acceptable. Sensor 96 may provide a signal to controller 91 representing the condition of the blended process material. If necessary, controller 91 may adjust the flow rate of one of process materials with valve 21 until a signal representing a set point is achieved from sensor 96. For example, where the process materials are a slurry and DI water the density of the desired slurry/DI water blend may be the set point. If this density is detected to be too low, more slurry may be added and, if it is detected to be too high, the amount of slurry being added may be reduced. In some embodiments, several sensors 96, of different or similar types, may provide signals to the controller representing conditions of the blended process materials.

In any embodiment where one of the process materials is fed at a constant flow rate and the flow rate of the other process material is adjusted to produce a desired blend, the overall flow rate is generally not selectable. Accordingly, such embodiments may provide the blended process material to a holding vessel 3. Holding vessel 3 may contain a device or system to prevent settling or separation of the blended process materials, such as an agitator. In another embodiment, excess blended process material may be produced and what is needed may be supplied on demand with the remainder being discarded. Alternatively, the flow rate of the other process material may be adjusted as well, such that the overall flow rate of the blended process materials may be matched to the demand, as described previously and shown in FIG. 13.

Accordingly, sensors 92, 93, and 96 in the three fluid lines 17, 18, 18 are able to measure a parameter of the fluid in the respective line (such as mass flow rate, volumetric flow, or density) and generate a measurement signal sent to controller 91 and then determine and control the volumetric or mass flow rate of the fluid in one or more of the other lines via flow controllers 21. The volumetric or mass flow rate may be measured via sensor 96 in the third line as seen in Figure 10. Therefore, it would have been obvious and mere common sense to one having ordinary skill in the art, at the

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time applicant's invention was made, to have provided the processes of JP 7-198554 or JP 2000-250634 with steps of measuring volumetric or mass flow rate in one or more of the three fluid lines or measuring a fluid density in at least one of the three fluid lines as taught by WILMER et al. for the purposes of monitoring the mixing process and the mixture(s) produced thereby to thus produce a desired blend of materials from the fluid lines.

Allowable Subject Matter

10. Claims 10-13, 16-24, and 35-40 are allowable over the prior art of record.

Response to Amendment

11. Applicant's arguments filed 31 MAY 2007 have been fully considered but they are not deemed to be persuasive.

Applicant remarks that the flow scheme of Figure 2 has been added to claims 10 and 14. This has been done with respect to claim 10 (flowing the fluids and then setting the flow of the fluids in the respective lines to zero as seen in Fig. 2) but no such limitations are seen in amended claim 14. Thus, the examiner considers the scope of amended claim 14 to remain within the teachings of the prior art as set forth in section (9) above.

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a).

A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS ACTION. IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION FEE PURSUANT TO 37 C.F.R. § 1.136(a) WILL BE CALCULATED FROM THE MAILING DATE OF THE ADVISORY ACTION. IN NO EVENT WILL THE STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE OF THIS FINAL ACTION. ANY RESPONSE FILED AFTER THE MAILING DATE OF THIS FINAL REJECTION WILL BE SUBJECT TO THE PROVISIONS OF MPEP 714.12 AND 714.13.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles E. Cooley whose telephone number is (571) 272-1139. The examiner can normally be reached on Mon-Fri.. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/CEC/

Charles E. Cooley
Primary Examiner
Art Unit 1723

9 August 2007